

WHAT IS CLAIMED IS:

1. A radiation image pick-up apparatus comprising:
 - conversion means for converting radiation into an electrical signal;
 - accumulation means for accumulating the electrical signal converted by said conversion means;
 - read means for reading out the electrical signal accumulated in said accumulation means;
 - 10 detection means for detecting start and end of irradiation of the radiation;
 - a driving circuit for accumulating the electrical signal in said accumulation means responsive to a detection of the start of irradiation of the radiation, and for driving said read means responsive to a detection of the end of irradiation of the radiation is detected, based on a detection result of said detection means; and
 - 20 control means for controlling said driving circuit.
2. An apparatus according to claim 1, wherein said control means stops driving said read means by said driving circuit or an external input when read of the electrical signal by said read means ends.
- 25 3. An apparatus according to claim 1, wherein

said control means is IC chip circuit.

4. An apparatus according to claim 1, wherein
said control means performs idling operation of said
conversion means before the accumulation operation.
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5. An apparatus according to claim 4, wherein the idling operation continues until the start of irradiation of the radiation is detected, and when the 10 start of irradiation of the radiation is detected, said accumulation means is driven to perform accumulation operation.

6. An apparatus according to claim 5, wherein an
15 operation time T_a of the idling operation and a time T_r
for driving said read means in order to read out image
information satisfy $T_r \geq T_a$.

7. An apparatus according to claim 1, further comprising:

an analog/digital converter for converting into a digital signal an electrical signal read out by the read operation and idling operation; and a memory for storing electrical signals converted by said analog/digital converter.

8. An apparatus according to claim 7, wherein

said memory includes one of a hard disk, a magneto-optical disk, and a random access memory.

9. An apparatus according to claim 8, wherein
5 said memory is loadable/unloadable into/from a main
body of the radiation image pick-up apparatus.

10. An apparatus according to claim 1, further comprising a loadable/unloadable battery for driving a main body of the radiation image pick-up apparatus.

11. An apparatus according to claim 1, wherein
said conversion means comprises:

a wavelength for converting the radiation into light; and

photoelectric conversion means for converting the light converted by said wavelength into an electrical signal.

20 12. An apparatus according to claim 1, wherein
said conversion means contains one material selected
from the group consisting of lead iodide, mercurous
iodide, selenium, cadmium telluride, gallium arsenide,
gallium phosphide, zinc sulfide, and silicon for
25 directly converting the radiation into an electric
charge.

13. An apparatus according to claim 1, wherein
said conversion means and said read means contain
amorphous silicon and are formed by the same step.

5 14. An apparatus according to claim 11, wherein
said wavelength converter is disposed at a position in
tight contact with said photoelectric conversion means.

10 15. An apparatus according to claim 11, wherein
said wavelength converter contains one material
selected from the group consisting of $\text{Gd}_2\text{O}_2\text{S}$, Gd_2O_3 , and
 CsI as a major component.

15 16. A method of driving a radiation image pick-up
apparatus for obtaining image information by converting
radiation which irradiates an object to be examined
into an electrical signal by a conversion element for
converting the radiation into an electrical signal,
comprising steps of:

20 an accumulation operation of detecting start of
irradiation of the radiation and accumulating the
converted electrical signal;

25 a read operation of detecting end of irradiation
of the radiation and reading out the accumulated
electrical signal; and

an idling operation of performing idle read of the
conversion element before the accumulation operation.

17. A method according to claim 16, further comprising a step of an operation of adding frame data in the idling operation immediately before the accumulation operation and frame data in the read 5 operation, and a step of outputting a sum as an image.

18. A radiation image pick-up system comprising:
a radiation image pick-up apparatus defined in
claim 1; and
10 a radiation source for emitting radiation to said
radiation image pick-up apparatus.